IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application For Reissue of
U.S. Patent No. 6,000,374

Inventor:	**James N. Usko et al.**
Filed:	**December 13, 2001**
For:	**MULTI-CYCLE, ENGINE BRAKING WITH POSITIVE POWER VALVE ACTUATION CONTROL SYSTEM AND PROCESS FOR USING THE SAME**
Attorney Docket #:	**34090-06263**

Commissioner for Patents
BOX REISSUE
Washington, D.C. 20231

Preliminary Amendment in Reissue Application

Dear Sir:

Pursuant to 37 CFR § 1.173, please amend the above-referenced reissue application, attached hereto, by deleting and/or adding text as indicated below:

IN THE BRIEF DESCRIPTION OF THE DRAWINGS:

Replace the paragraph beginning at column 12, line 10 with the following:

Fig. 4 is a plan schematic view illustrating the [dual cam] rocker arm arrangement and dedicated brake rocker for a compression release-type engine brake according to the present invention;

Delete the paragraph beginning at column 12, line 13.

Replace the paragraph beginning at column 12, line 15 with the following:

Fig. 6 is a cross-sectional view of [the exhaust] a common rocker shaft [of Fig. 5 along section line I-I] and a solenoid valve according to one embodiment of the present invention;

Replace the paragraph beginning at column 12, line 17 with the following:

Fig. 7 is a partial cross-sectional view of [the] an exhaust rocker arm [of Fig. 5 along section lines II-II and III-III] according to one embodiment of the present invention;

Replace the paragraph beginning at column 12, line 19 with the following:

Fig. 8 is [a partial cross-sectional] an overhead view of [the] an exhaust rocker arm [of Fig. 7 along section line IV-IV] according to one embodiment of the present invention;

Delete the paragraph beginning at column 12, line 21.

Delete the paragraph beginning at column 12, line 23.

Replace the paragraph beginning at column 12, line 25 with the following:

Fig. 11 is a partial cross-sectional view of [the] an intake rocker arm [of Fig. 10 along section lines V-V and VI-VI] according to one embodiment of the present invention;

Replace the paragraph beginning at column 12, line 27 with the following:

Fig. 12 is a cross-sectional view of [the] an intake rocker arm [of Fig. 11 along section line VII-VII] according to one embodiment of the present invention;

Delete the paragraph beginning at column 12, line 29.

Replace the paragraph beginning at column 12, line 31 with the following:

Fig. 14 is a partial cross-sectional view of [the] a brake rocker arm [of Fig. 13 along section line VIII-VIII] according to one embodiment of the present invention;

Delete the paragraph beginning at column 12, line 33.

Delete the paragraph beginning at column 12, line 35.

Delete the paragraph beginning at column 12, line 37.

Add the following paragraphs at column 12, line 43:

Fig. 19 is an enlarged cross-section view of a lash adjuster according to one embodiment of the present invention;

Fig. 20 is a side view of an exhaust rocker arm according to an alternate embodiment of the present invention; and

Fig. 21 is a side view of an intake rocker arm according to an alternate embodiment of the present invention.

IN THE DETAILED DESCRIPTION OF THE INVENTION:

Replace the paragraph beginning at column 12, line 45 with the following:

Reference will now be made in detail to a preferred embodiment of the present invention, an example of which is illustrated in the accompanying drawings. Fig. 4 and Fig. 18 illustrate a schematic view of the valve side of [dual cam shaft] a rocker arm arrangement and dedicated brake cam rocker for a compression release-type engine brake assembly **10** according to the present invention. The compression release engine brake components and the valve actuation components are located in rocker arms **100**, **200**, and **300**.

Replace the paragraph beginning at column 12, line 54 with the following:

The rocker arms **100**, **200**, and **300** are spaced along a common rocker shaft **11** having at least one passage. The common rocker shaft **11** has a passage **12** through

which a supply of engine oil flows therethrough, as shown in Fig. 6. The common rocker shaft **11** also has a supply passage **13** which supplies hydraulic fluid to an exhaust rocker arm **100** and an intake rocker arm **200**. A valve **30** is located on the common rocker shaft **11**, as shown in Fig. 6. The valve **30** is preferably a normally open solenoid valve, as shown in Fig. 6. It, however, is contemplated by the inventors of the present invention that other suitable valves may be substituted and are considered to be within the scope of the present invention. The valve **30** includes a connector assembly **31** for electrically connecting the valve **30** to a vehicle voltage source[, not shown]. The valve **30** when in an open position permits the flow of hydraulic fluid from passage **12** to supply passage **13**. The rocker arms **100**, **200** and **300** correspond to a cam shaft **20** having three spaced cam lobes **21**, **22**, and **23**. Exhaust cam lobe **21** corresponds to an exhaust rocker arm **100**, as shown in Fig. 7. Intake cam lobe **22** corresponds to an intake rocker arm **200**, as shown in Fig. 11. Brake cam lobe **23** corresponds to a brake rocker arm **300**, as shown in Fig. 14. The exhaust cam lobe **21** and the intake cam lobe **22** are oriented and timed to effect normal valve operation, as in a typical four-stroke internal combustion engine, of the type known in the prior art.

Replace the paragraph beginning at column 13, line 17 with the following:

The brake cam lobe **23** includes a first compression release lobe. In a preferred embodiment, as shown in Fig. 3, the [profile of the lobe starts at about 35°. The] first compression release [lobe] event **1** is timed to start at about 40° before compression top dead center (TDC), then reach maximum opening around compression top dead center.

The first compression release event is timed to then [Then] start closing after compression top dead center, staying partially open for a period, as shown by the exhaust gas recirculation event **2**, and then closing around bottom dead center[,]. [and finish just after compression TDC.] A second [lobe] compression release event **3** is timed to start about [1000] 40° before exhaust TDC [after compression TDC] and finish by [200°] 70° after [compression] exhaust TDC.

Replace the paragraph beginning at column 13, line 28 with the following:

Means for effecting exhaust valve operation will now be described in connection with Figs. [5-9] 7 and 8. The means includes an exhaust rocker arm **100** that is rotatably mounted on the common rocker shaft **11**. A first end of the exhaust rocker arm **100** includes an exhaust cam lobe follower **110**. The exhaust cam lobe follower **110** preferably includes a roller follower **111** that is in contact with the exhaust can lobe **21**.

Replace the paragraph beginning at column 13, line 35 with the following:

A second end of the exhaust rocker arm **100** has a lash adjuster **120**. The lash adjuster **120** is adjacent to a crosshead **130**. The lash adjuster **120** is described in detail below. The crosshead **130** is preferably a bridge device that is capable of opening two exhaust valves simultaneously. The exhaust rocker arm **100** also includes a control valve **140** that includes a spring ball assembly **141**, as shown in Fig. 8. The control valve **140** is in communication with a fluid passageway **150** that extends through the exhaust rocker arm **100** to the lash adjuster **120**. The control valve **140** is also in

communication with a fluid passageway **160** that extends between the control valve **140** and supply passage **13** of the common rocker shaft **11**, as shown in Fig. 7.

Replace the paragraph beginning at column 13, line 48 with the following:

The passage **12** is connected to passage **14** which supplies hydraulic fluid to provide lubrication between the exhaust rocker arm **100** and the common rocker shaft **11**. The passage **14** also supplies lubricant through passage **15** to the exhaust cam lobe follower **110** such that the exhaust roller follower **111** [smoothly follows cam **21**] is lubricated.

Replace paragraph beginning at column 13, line 54 with the following:

Means for effecting intake valve operation will now be described in connection with Figs. [10-12] 11 and 12. The means includes an intake rocker arm **200** that is rotatably mounted on the common rocker shaft **11**. A first end of the intake rocker arm **200** may include an intake cam lobe follower **210**, as described above in connection with exhaust rocker arm **100**. The intake roller follower **211** of the intake cam lobe follower **210** is in contact with the intake cam lobe **22**. However, it is contemplated that other cam followers[, such as, for example, a roller follower] are considered to be within the scope of the present invention.

Replace the paragraph beginning at column 13 line 64 with the following:

A second end of the intake rocker arm **200** has a lash adjuster **220**. The lash adjuster **220** has the same design as the lash adjuster **120** described above in connection with the exhaust[er] rocker arm **100**. The lash adjuster **220** is adjacent to a crosshead **230**. The lash adjuster **220** is described in detail below. The crosshead **230**

is also preferably a bridge device that is capable of opening two intake valves simultaneously. The intake rocker arm **200** also includes a control valve **240**. The control valve **240** is in communication with a fluid passageway **250** that extends through the exhaust rocker arm **200** to the lash adjuster **220**, as shown in Fig. 12. The control valve **240** has the same construction as the control valve **140** described above in connection with the exhaust rocker arm **100**. The control valve **240** is also in communication with a fluid passageway **260** that extends between the control valve 240 and supply passage 13 of the common rocker shaft **11**, as shown in Fig. 11.

Replace the paragraph beginning at column 14, line 14

The passage **12** is connected to passage [15] **16** which supplies hydraulic fluid to provide lubrication between the [exhaust] intake rocker arm **200** and the common rocker shaft **11**. The passage [14] **16** also supplies lubricant through passage [17] **25** to the [exhaust] intake cam lobe follower **210** such that the intake roller follower **211** [smoothly follows cam **22**] is lubricated. Alternatively, the common rocker shaft **11** may be provided with a third passage **18**, as shown in Fig. 18. The third passage **18** supplies lubricant to the cam lobe [following] followers **110**, **210** and **310**.

Replace the paragraph beginning at column 14, line 23 with the following:

Means for effecting two cycle engine braking will now be described in connection with [Figs. 13-15] Fig. 14. The means includes a brake rocker arm **300** that is rotatably mounted on the common rocker shaft **11**. A first end of the brake rocker arm **300** includes a brake cam lobe follower **310**. The brake cam lobe follower **310** preferably includes a roller follower **311** that is in contact with the brake cam lobe **31**.

Replace the paragraph beginning at column 14, line 30 with the following:

A second end of the brake rocker arm **300** has an actuator piston **320**. The actuator piston **320** is spaced from the crosshead pin 133 of the crosshead **130** [of the exhaust rocker arm **100**]. When activated, [the brake rocker arm 300 and] the actuator piston **320** contacts the crosshead pin **133** of the crosshead **130** to open the at least one exhaust valve. The brake rocker arm **300** also includes a combination control valve/solenoid valve **340**. The valve **340** is in communication with a fluid passageway **350** that extends through the brake rocker arm **300** to the actuator piston **320**, as shown in Fig. 14. The valve **340** is also in communication with a fluid passageway **360** that extends between the valve **340** and passage **12** of the common rocker shaft **11**. The valve **340** [is] preferably includes an electronically operated solenoid valve **344**. The valve **340** includes a connector assembly **341** for electrically connecting the [control] solenoid valve **344** to a vehicle -- which supplies voltage at the proper time.

Replace the paragraph beginning at column 14, line 47 with the following:

The above-described brake rocker arm **300** includes [a] the valve **340** [including a solenoid valve] mounted [on the rocker arm 300] thereon. It is contemplated and preferred by the inventors of the present invention that the solenoid valve **344** of the valve **340** may be relocated to the common rocker shaft **11**. As shown in Fig. 18, solenoid valve **344** is located on the common rocker shaft **11**. With this arrangement, any difficulties with electrically connecting the valve to the vehicle are avoided because the solenoid valve **344** would not rotate with the rocker arm. The brake rocker arm **300** would include a control valve **342** therein similar to control valves **140** and **240**,

described above. Hydraulic fluid would then be fed to the rocker arm **300** through the solenoid valve **344** on the common rocker shaft **11** to the control valve **342** on the rocker arm to operate the actuator [portion] piston **320**.

Replace the paragraph beginning at column 15, line 6 with the following:

The lash adjuster **120** will now be described in connection with Fig. [9] 19. The lash adjuster **120** is mounted in the second end of the exhaust rocker arm **100**, as shown in Fig. [9] 19. The lash adjuster **120** includes an inner plunger **121** and an outer plunger **122**. The outer plunger **122** includes a ring **1221** that is positioned within groove **170** within the exhaust rocker arm **100**, as shown in Fig. [9] 19. The inner plunger **121** is slidably received within the outer plunger **122**. In operation, hydraulic fluid flows into a cavity **1211** in the inner plunger **121**. As the cavity **1211** fills with fluid, the check ball valve **1213** is biased downwardly to open aperture **1210** in the inner plunger **121**. Hydraulic fluid then flows into cavity **1222** [in] between the outer plunger **122** and the inner plunger **121**. As the cavity **1222** is filled with fluid, the outer [piston] plunger [121] **122** moves downward to an extended position to engage crosshead [pin] **130**. The downward movement of the outer [piston] plunger [121] **122** is limited by the ring **1221** engaging the lower surface of groove **170**.

Replace the paragraph beginning at column 15, line 37 with the following:

Fig. 3 depicts the exhaust valve opening and remaining open for optimum engine braking. As shown in Fig. 3, the motion begins [at the] before the TDC of the first compression stroke. Additionally, the extended plateaus shown during which the exhaust valve remains open but with a reduced valve opening, permits drawing exhaust

gas from the exhaust manifold into the cylinder as the piston travels away from the cylinder head. The exhaust valve closes and the entrapped exhaust gas is compressed and then released providing a second engine braking cycle **3**. The motion of the intake valve will now be described. [Subsequently, the intake valve opens, air is drawn into the cylinder and compressed and then released providing a first engine braking cycle. Subsequently, the intake valve opens, air is drawn into the cylinder and compressed repeating the two-cycle braking.] The intake valve's opening **4** is modified (from its positive power timing **8**) to occur after TDC of the second braking cycle **3** to insure the compressed exhaust gas is not vented into the intake manifold.

Replace the paragraph beginning at column 15, line 55

The operation of the exhaust rocker arm **100** will now be described during positive power operation. During positive power, the [control] valve **30** is opened. The [control] valve **30** is preferably a normally open three way solenoid valve. The solenoid valve **30** permits the flow of hydraulic fluid from passage **12** to supply passage **13**. Fluid then flows through passageway **160** to control valve **140**. The spring ball assembly **141** of the control valve **140** is unseated to allow hydraulic fluid to flow through passageway **150** to lash adjuster **120**. The lash adjuster **120** is extended to a fully extended normal operating position such that the lash adjuster **120** is in contact with the crosshead **130**. When pressure within the control valve **140**, specifically the spring ball assembly **141** equalizes a hydraulic lock forms which allows the lash adjuster **120** to remain in an extended position. Accordingly, the exhaust rocker arm **100** will activate exhaust valve openings in response to exhaust cam lobe **21**.

Replace the paragraph beginning at column 16, line 8 with the following:

The operation of the intake rocker arm **200** during positive power operation will now be described. As described above in connection with the exhaust rocker arm **100**, the solenoid valve **30** is in an open position. The [spring ball assembly 241 of] solenoid valve **30** permits the flow of hydraulic fluid from passage **12** to supply passage **13**. Fluid then flows through passageway **260** to control valve **240**. The spring ball assembly **241** of the [The] control valve **240** is unseated to allow hydraulic fluid to flow through passageway **250** to lash adjuster **220**. The lash adjuster **220** is extended to a fully extended normal operating position such that the lash adjuster **220** is in contact with the crosshead **230**. The control valve **240** operates in a similar manner to control valve **140**, described above, to form a hydraulic lock that allows the lash adjuster **220** to remain in an extended position. Accordingly, the intake rocker arm **200** will actuate intake valve openings in response to intake cam lobe **22**.

Replace the paragraph beginning at column 16, line 25 with the following:

The operation of the brake rocker arm **300** during positive power operation will now be described. The [solenoid] valve **340** is closed. During positive power, the solenoid valve **344** of the valve **340** remains closed. Accordingly, the actuator piston **320** remains in a [seated] retracted position, as shown in [Figs. 14 and 15] Fig. 14. The brake rocker arm **300** will remain in a disabled position during positive power.

Replace the paragraph beginning at column 16, line 35 with the following:

The operation of the exhaust rocker arm **100** will now be described during an engine braking operation. During engine braking, the solenoid valve **30** is operated to stop the

flow of hydraulic fluid through passage **13**. The control valve **140** is [opened] in the off position. This permits the hydraulic fluid trapped within passageway **150**, as described above in connection with the positive power operation to be vented[.], [The spring ball assembly 141] [prevents] preventing the additional supply of hydraulic fluid to passageway 150. This causes the lash adjuster **120** to retract. As a result, exhaust valve openings cease during the engine braking operation. A spring, not shown, may be provided to prevent vibration and chatter of the exhaust rocker arm **100** when in the above described disabled position.

Replace the paragraph beginning at column 16, line 50 with the following:

The operation of the intake rocker arm **200** will now be described during an engine braking operation. During engine braking, the solenoid valve **30** is operated to stop the flow of hydraulic fluid through passage **12**, as described above. A control valve **240** is operated to vent the hydraulic fluid in a similar manner as described above in connection with the exhaust rocker arm **100**. The preset stop of the lash adjuster **220** prevents the lash adjuster **220** from fully retracting. Accordingly, the intake rocker arm **200** is not fully disabled during the engine braking operation. The total cam lift of the intake cam lobe **22** is not transferred into valve lift. This has the effect of delaying the time event to occur after exhaust top dead center. The opening of the intake valve is delayed due to the partially retracted position of lash adjuster **220**. The opening is delayed until the cylinder is vented through the open exhaust valve immediately following the second compression braking cycle 3, as shown in Fig. 3.

Replace the paragraph beginning at column 17, line 1 with the following:

The operation of the brake rocker arm **300** during an engine braking operation will now be described. During engine braking, the [solenoid] valve **340** is operated. Hydraulic fluid is permitted to flow from passage **12** through passageway **360** to passageway **350**. The actuator piston **320** then extends to a fully extended position such that it contacts pin **133** on crosshead **130**. When the passageway **350** is filled with hydraulic fluid and the pressure is equalized within valve **340**, a hydraulic lock is formed thus holding the actuator piston **320** in an extended position. The operation of the exhaust valve is now controlled by the brake rocker arm **300** in response to actuation by the brake cam lobe **23**. The operation of the exhaust valves will occur in response to the profile of the brake cam lobe **23**.

Replace the paragraph beginning at column 17, line 54 with the following:

Continuing with the embodiments in the accompanying figures, Fig. [16] <u>20</u> is an alternative embodiment for the means for effecting exhaust valve operation. The exhaust rocker arm **1000** is rotatably mounted on the common rocker shaft **11**. A first end of the exhaust rocker arm **1000** includes an exhaust cam lobe follower [110] <u>**111**</u>.

Replace the paragraph beginning at column 17, line 60 with the following:

A second end of the exhaust rocker arm **1000** has a lash adjuster **120**. The lash adjuster **120** is connected adjacent to a crosshead **130**. The crosshead **130** is preferably a bridge device that is capable of opening two valves simultaneously. The exhaust rocker arm **1000** also includes a <u>combination control valve/</u>solenoid valve **1400**. The [solenoid control] valve **1400** is in communication with a fluid passageway **150** that extends through the exhaust rocker arm **100** to the lash adjuster **120**. The [solenoid

control] valve **1400** is also in communication with a fluid passageway [160] **16** that extends between the [solenoid] valve [140] **1400** and supply passage 13 of the common rocker shaft **11**. The [solenoid] valve **1400** combines the solenoid valve **30** and the [solenoid] control valve **140** into a single assembly.

Replace the paragraph beginning at column 18, line 7 with the following:

Fig. [17] 21 is an alternative embodiment for the means for effecting intake valve operation. The intake rocker arm **2000** is rotatably mounted on the common rocker shaft **11**. A second end of the intake rocker arm **2000** has a lash adjuster **220**. The intake rocker arm **2000** also includes a combination control valve/solenoid valve **2400**. The [solenoid] valve **2400** is in communication with a fluid passageway **250** that extends through the exhaust rocker arm **2000** to the lash adjuster **220**. The solenoid valve **2400** has the same construction as the [solenoid] valve **1400** described above in connection with the exhaust rocker arm **1000**.

Replace the paragraph beginning at column 18, line 22 with the following:

It will be apparent to those skilled in the arts that various modifications and variations can be made in the construction and configuration of the present invention, without departing from the scope or spirit of the invention. Several variations have been discussed in the preceding text. Furthermore, it is contemplated that the present invention may be used with a common rail camless type engine whereby the above described [rocker arms] engine valves may be electronically operated. Others will be apparent to persons of ordinary skills in the art. It is intended that the present invention

cover the modifications and variations of the invention, provided they come within the scope of the appended claims and their equivalence.

IN THE CLAIMS:

Add claim 22 as follows:

22. An assembly for operating an engine valve comprising:

a rocker shaft;

a rocker arm pivotally mounted on said rocker shaft, said rocker arm including a cavity at a valve actuation end;

an hydraulic lash adjuster slidably disposed in the rocker arm cavity;

an hydraulic passage provided in the rocker arm, said passage communicating with the rocker arm cavity; and

means for (a) supplying hydraulic fluid to the passage during a positive power mode of engine operation and (b) cutting off the supply of hydraulic fluid to the passage during an engine braking mode of engine operation.

Add claim 23 as follows:

23. The assembly of Claim 22, wherein said hydraulic lash adjuster comprises:

an outer plunger slidably received in the cavity; and

an inner plunger slidably received in the outer plunger.

Add claim 24 as follows:

24. The assembly of Claim 22, wherein said means for supplying and cutting off supply comprises a normally open three-way solenoid valve.

Add claim 25 as follows:

25. The assembly of Claim 22, wherein said means for supplying and cutting off supply is mounted on said rocker shaft.

Add claim 26 as follows:

26. The assembly of Claim 22, wherein said means for supplying and cutting off supply provides hydraulic fluid flow control for a plurality of lash adjusters.

Add claim 27 as follows:

27. A method of operating an engine valve lash adjuster in an internal combustion engine comprising the steps of:

determining that an engine is operating in a positive power mode;

supplying hydraulic fluid to a lash adjuster in response to a determination that the engine is operating in a positive power mode of operation;

determining that the engine is operating in an engine braking mode; and

cutting off the supply of hydraulic fluid to the lash adjuster in response to a determination that the engine is operating in an engine braking mode of operation.

Add claim 28 as follows:

28. An engine valve actuation system for positive power mode and compression brake mode engine operation, said system comprising:

a first rocker arm positioned to selectively actuate one or more valves associated with an engine cylinder;

a first hydraulic lash adjuster operatively contacting the first rocker arm, said first hydraulic lash adjuster being adapted to provide more lash during compression brake operation than during positive power operation;

a second rocker arm positioned to selectively actuate at least one of the one or more valves associated with the engine cylinder; and

a second hydraulic lash adjuster operatively contacting the second rocker arm, said second hydraulic lash adjuster being adapted to provide more lash during positive power operation than during compression brake operation.

Add claim 29 as follows:

29. The system of Claim 28 wherein the first rocker arm is an exhaust rocker arm, and wherein the second rocker arm is a brake rocker arm.

Add claim 30 as follows:

30. The system of Claim 28 wherein the first rocker arm is an intake rocker arm, and wherein the second rocker arm is a brake rocker arm.

Add claim 31 as follows:

31. The system of Claim 28 further comprising a brake cam in operative contact with the second rocker arm, said brake cam having at least two compression-release lobes adapted to provide two-cycle engine brake operation.

Add claim 32 as follows:

32. The system of Claim 28 wherein the first hydraulic lash adjuster extends out of an end of the first rocker arm.

Add claim 33 as follows:

33. The system of Claim 32 wherein the second hydraulic lash adjuster extends out of an end of the second rocker arm.

Add claim 34 as follows:

34. The system of Claim 28 further comprising:

a third rocker arm positioned to selectively actuate one or more additional valves associated with the engine cylinder; and

a third hydraulic lash adjuster operatively contacting the third rocker arm, said third hydraulic lash adjuster being adapted to provide more lash during compression brake operation than during positive power operation.

Add claim 35 as follows:

35. The system of Claim 34 wherein the third rocker arm is an intake rocker arm.

Add claim 36 as follows:

36. The system of Claim 34 further comprising a shared hydraulic supply circuit for the first hydraulic actuator and the third hydraulic actuator.

Add claim 37 as follows:

37. The system of Claim 28 further comprising a valve bridge between the first rocker arm and the one or more valves associated with the engine cylinder.

Add claim 38 as follows:

38. The system of Claim 37 further comprising means for actuating a valve through the valve bridge using the second rocker arm.

Add claim 39 as follows:

39. The system of Claim 34 further comprising a valve bridge between the third rocker arm and the one or more additional valves associated with the engine cylinder.

Add claim 40 as follows:

40. An engine valve actuation system for positive power mode and two-cycle compression brake mode engine operation, said system comprising:

an exhaust rocker arm positioned to selectively actuate an exhaust valve;

a first hydraulic lash adjuster positioned between the exhaust rocker arm and the exhaust valve;

a brake rocker arm positioned to selectively actuate the exhaust valve; and

a second hydraulic lash adjuster positioned between the brake rocker arm and the exhaust valve.

Add claim 41 as follows:

41. The system of Claim 40 further comprising:

means for selectively providing hydraulic fluid to the first hydraulic lash adjuster during positive power mode operation; and

means for selectively providing hydraulic fluid to the second hydraulic lash adjuster during compression brake mode operation.

Add claim 42 as follows:

42. The system of Claim 41 wherein the first hydraulic lash adjuster extends out of an end of the exhaust rocker arm.

Add claim 43 as follows:

43. The system of Claim 42 wherein the second hydraulic lash adjuster extends out of an end of the brake rocker arm.

Add claim 44 as follows:

44. The system of Claim 40 further comprising a valve bridge between the exhaust rocker arm and the exhaust valve.

Add claim 45 as follows:

45. The system of Claim 44 further comprising means for actuating the exhaust valve through the valve bridge using the brake rocker arm.

Add claim 46 as follows:

46. The system of Claim 40 further comprising a brake cam in operative contact with the second rocker arm, said brake cam having at least one compression-release lobe and at least one exhaust gas recirculation lobe.

Add claim 47 as follows:

47. The system of Claim 28 further comprising a brake cam in operative contact with the second rocker arm, said brake cam having at least one compression-release lobe and at least one exhaust gas recirculation lobe.

Add claim 48 as follows:

48. A method for positive power mode and compression brake mode engine valve actuation in a system having first and second rocker arms used to actuate an engine valve, said method comprising the steps of:

providing hydraulic fluid to a first lash adjuster associated with the first rocker arm

and draining hydraulic fluid from a second lash adjuster associated with the second rocker arm during positive power mode;

actuating the engine valve with the first rocker arm during positive power mode;

providing hydraulic fluid to the second lash adjuster and draining hydraulic fluid from the first lash adjuster during compression brake mode; and

actuating the engine valve with the second rocker arm during compression brake mode.

Add claim 49 as follows:

49. The method of Claim 48 wherein the engine valve is actuated two times per engine cycle during compression brake mode near piston top dead center position to achieve two-cycle compression braking.

Add claim 50 as follows:

50. The method of Claim 48 wherein the engine valve is actuated to achieve exhaust gas recirculation during compression brake mode.

Remarks

Applicant requests that the foregoing amendments be entered prior to examination of the above-referenced reissue application. No new matter is added by the revision of the specification or the addition of Claims 22-50. No fee, in addition to the reissue application filing fee attached hereto, is required for consideration of this Preliminary Amendment.

If any additional fee is required, the Commissioner is authorized to charge any deficiency or credit any overpayment to deposit account number 03-2469.

Respectfully submitted,

Dated: December 13, 2001

PATRICK J. COYNE, Reg. No. 31,821
MARK W. RYGIEL, Reg. No. 45,871
COLLIER SHANNON SCOTT, PLLC
3050 K Street, N.W., Suite 400
Washington, D.C. 20007
(202) 342-8400

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application for Reissue of
U.S. Patent No. 6,000,374

Date of Issue: **December 14, 1999**

In re Application of: **Jim Usko et al.**

For: **APPARATUS AND METHOD TO SUPPLY OIL, AND ACTIVATE ROCKER BRAKE FOR MULTI-CYLINDER RETARDING**

Assignee: **Jacobs Vehicle Systems, Inc.**

Attorney Docket #: **34090-06263**

PATENT

Statement of Status and Support For Claim Changes Under 37 CFR 1.173(c)

The Honorable Commissioner
of Patents & Trademarks
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 CFR 1.173(c), after entry of the Preliminary Amendment submitted herewith, original patent Claims 1-21 and newly added Claims 22-50 are pending. Support for the subject matter in newly added Claims 22-50 is found in the specification, at, *inter alia*, Col. 15, ll. 6-22, Col. 15 line 55 - Col. 16 line 31, Col. 16 line 35 - Col. 17 line 14, and Figs. 1-4, 6-8, 11-12, 14, and 18-21.

Date: December 13, 2001

Respectfully Submitted,

PATRICK J. COYNE, Reg. No. 31,821
MARK W. RYGIEL, Reg. No. 45,871
COLLIER SHANNON SCOTT, PLLC
3050 K Street, N.W., Suite 400
Washington, D.C. 20007
(202) 342-8400

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application for Reissue of
U.S. Patent No. 6,000,374

Date of Issue:	**December 14, 1999**
In re Application of:	**Jim Usko et al.**
For:	**APPARATUS AND METHOD TO SUPPLY OIL, AND ACTIVATE ROCKER BRAKE FOR MULTI-CYLINDER RETARDING**
Assignee:	**Jacobs Vehicle Systems, Inc.**
Attorney Docket #:	**34090-06263**

Request for Approval of Drawing Changes

The Honorable Commissioner
of Patents & Trademarks
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 CFR § § 1.121 and 1.173, Applicants respectfully request approval of the changes indicated in red on the attached sheets for the above-referenced reissue application. The changes are necessary to correct errors inadvertently incorporated into the above-referenced original patent. In particular, Figs. 3, 4, 6, 7, 8, 11, 12, 14, and 18 are amended, Figs. 5, 9, 10, 13, 15, 16, and 17 are canceled, and Figs. 19-21 are added. Figure 19 corrects errors in, and in effect replaces, canceled Fig. 9. Figure 20 corrects errors in, and in effect replaces, canceled Fig. 16. Figure 21 corrects errors in, and in effect replaces, canceled Fig. 17.

Each of the drawing changes is in conformance with the specification as to structure and numbering. No new matter is introduced.

Respectfully Submitted,

Date: December 13, 2001

PATRICK J. COYNE, Reg. No. 31,821
MARK W. RYGIEL, Reg. No. 45,871
COLLIER SHANNON SCOTT, PLLC
3050 K Street, N.W., Suite 400
Washington, D.C. 20007
(202) 342-8400

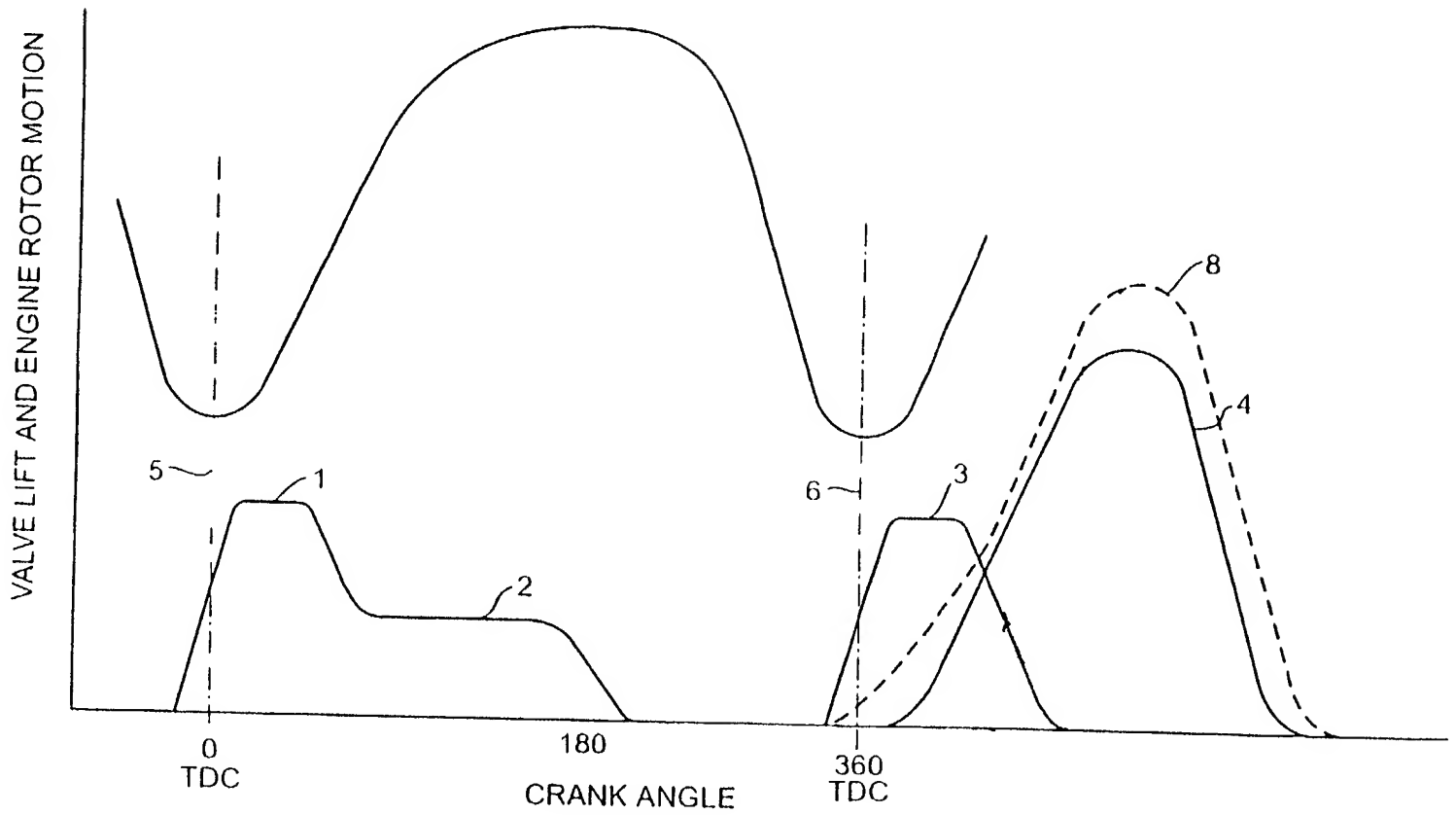

FIG. 3

AMENDED

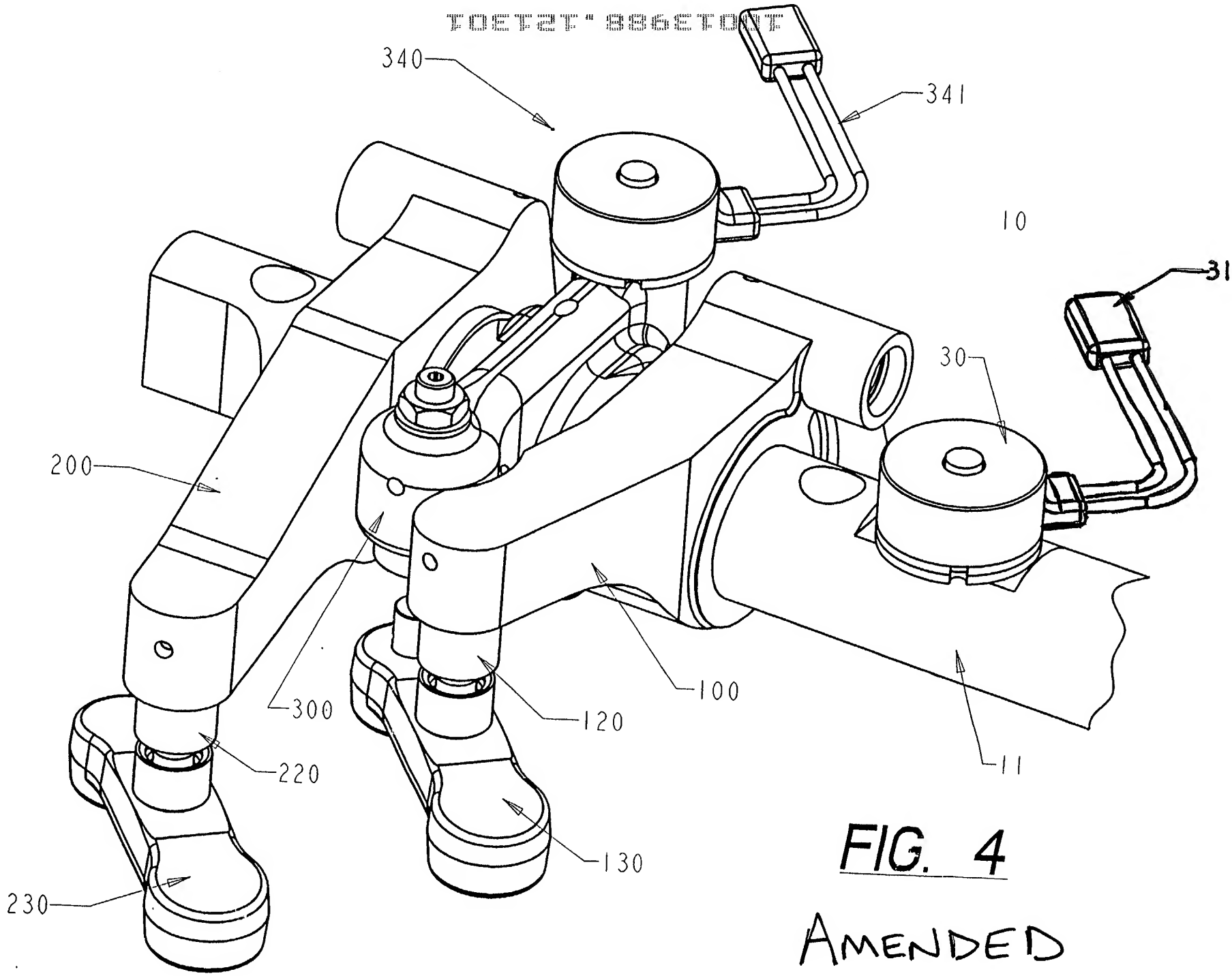

FIG. 4

AMENDED

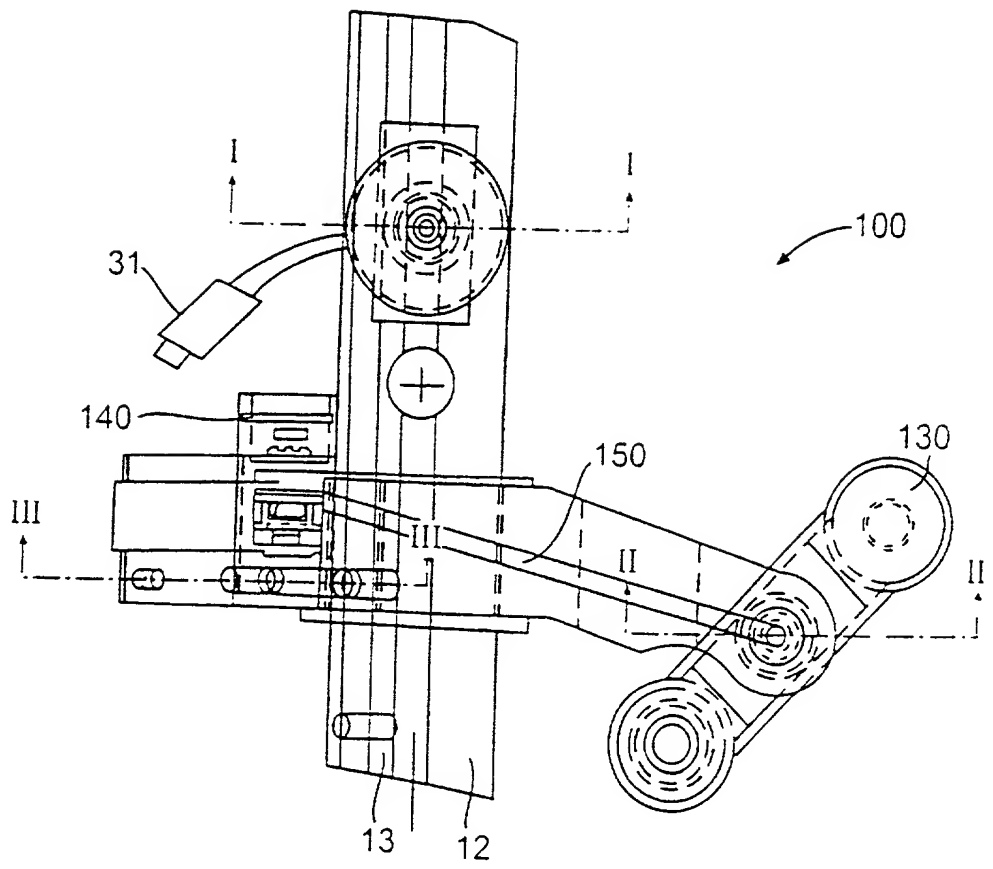

FIG. 5

CANCELED

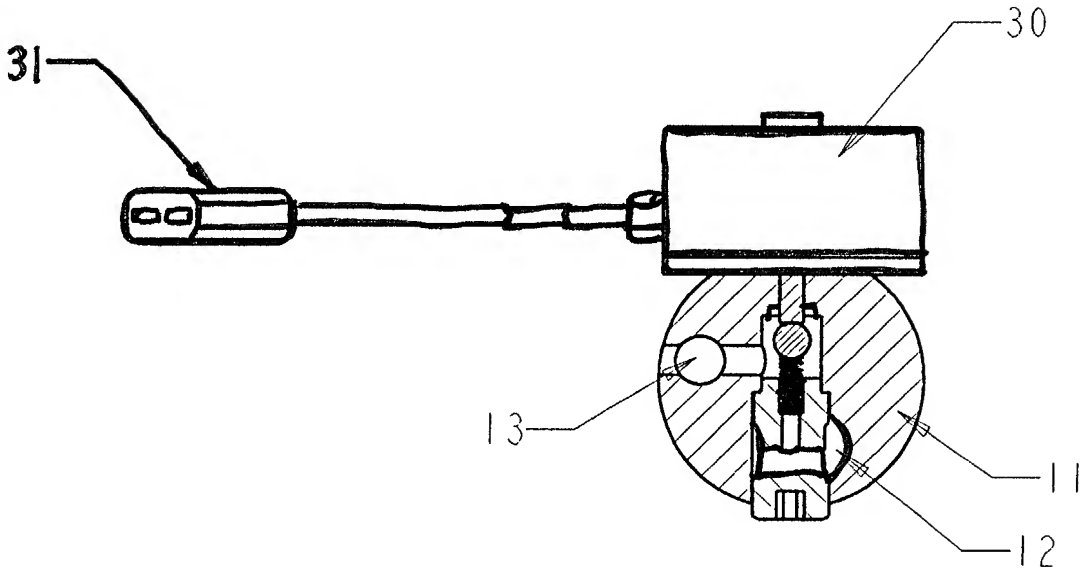

FIG. 6

AMENDED

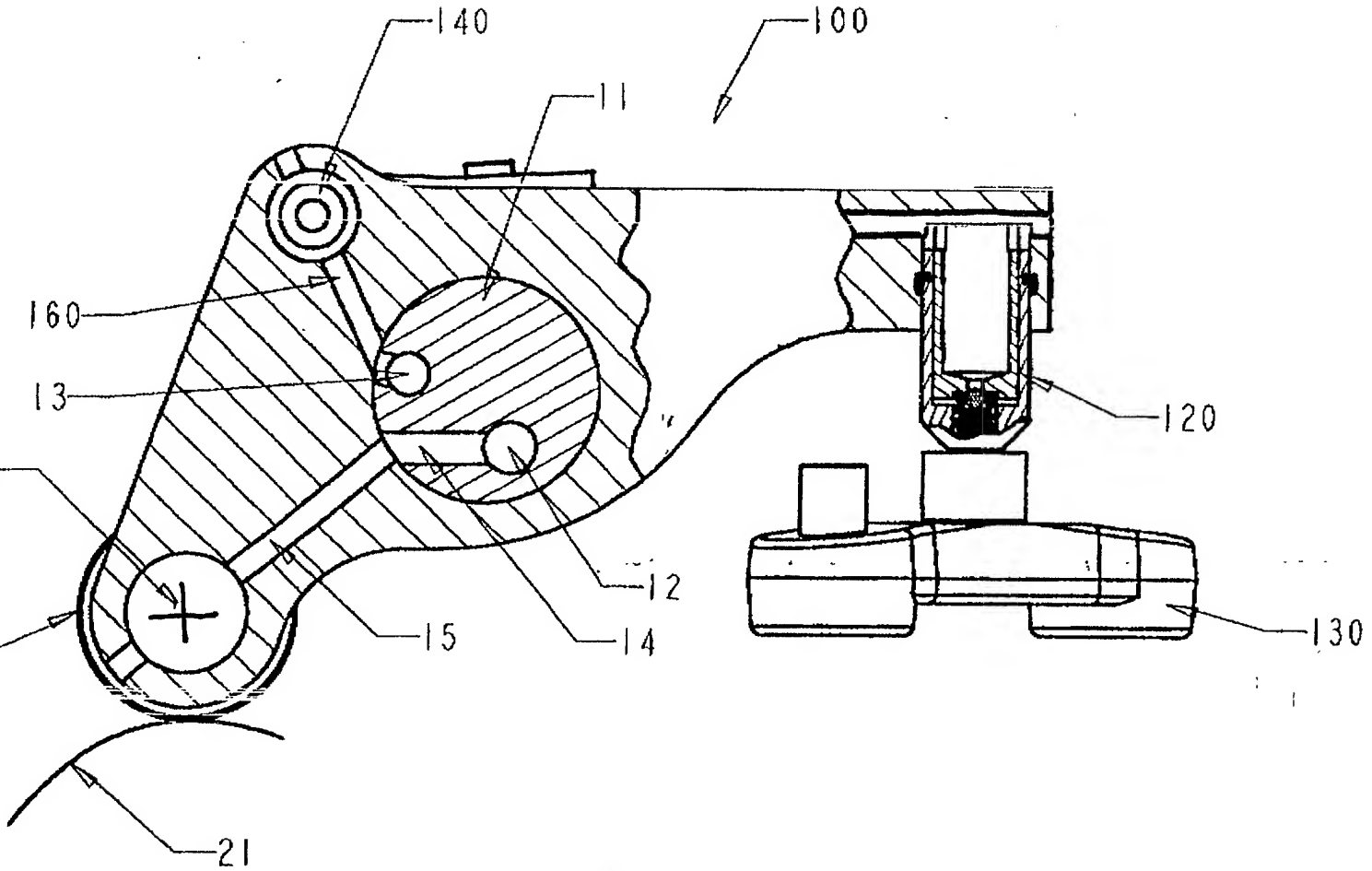

FIG. 7

AMENDED

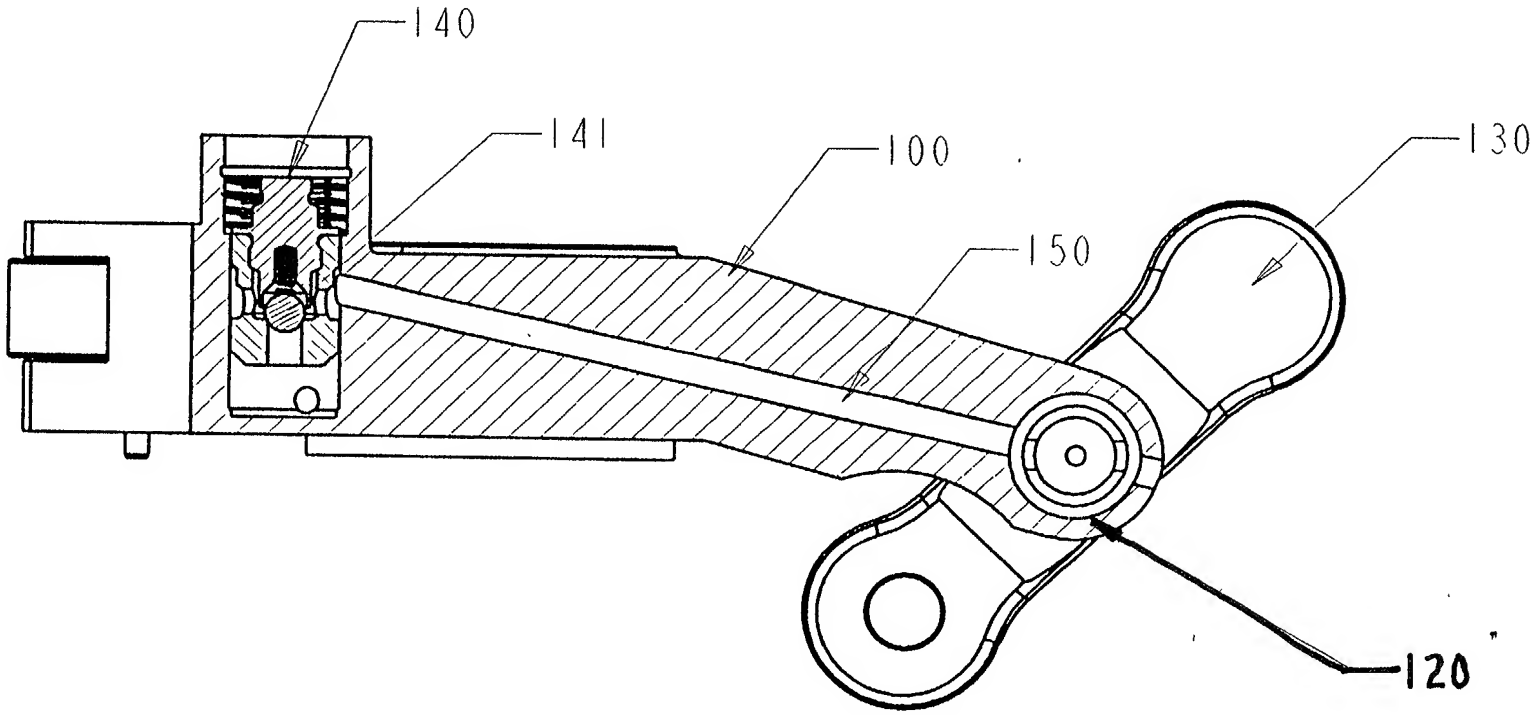

FIG. 8

AMENDED

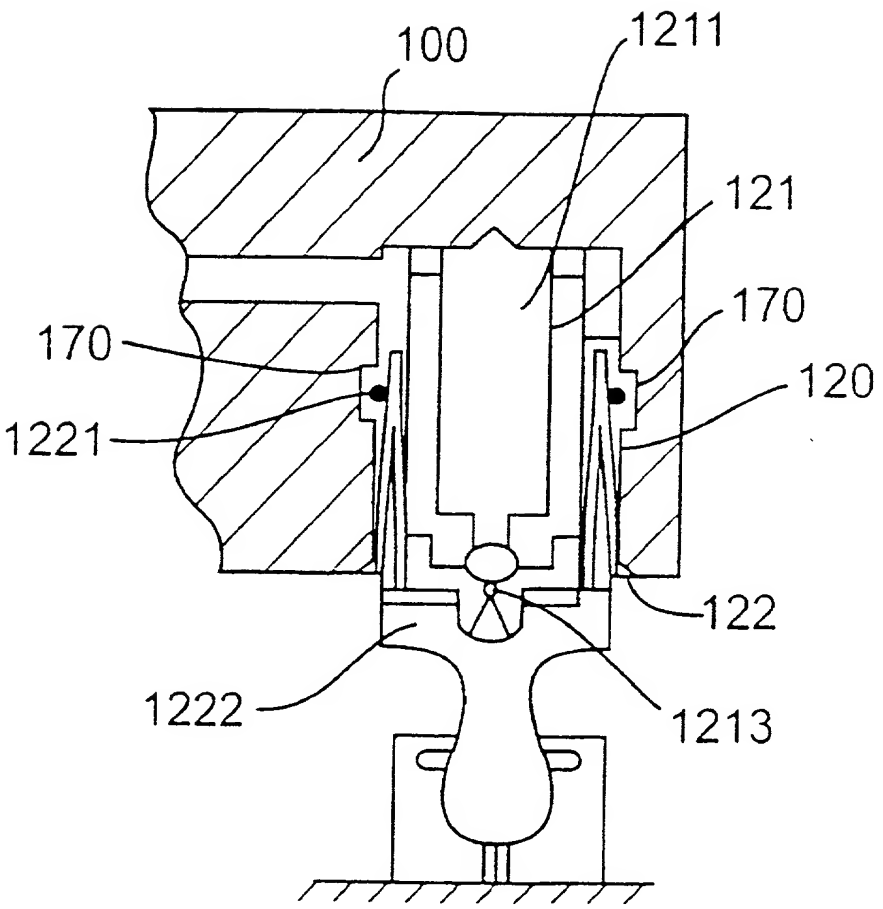

FIG. 9

CANCELED

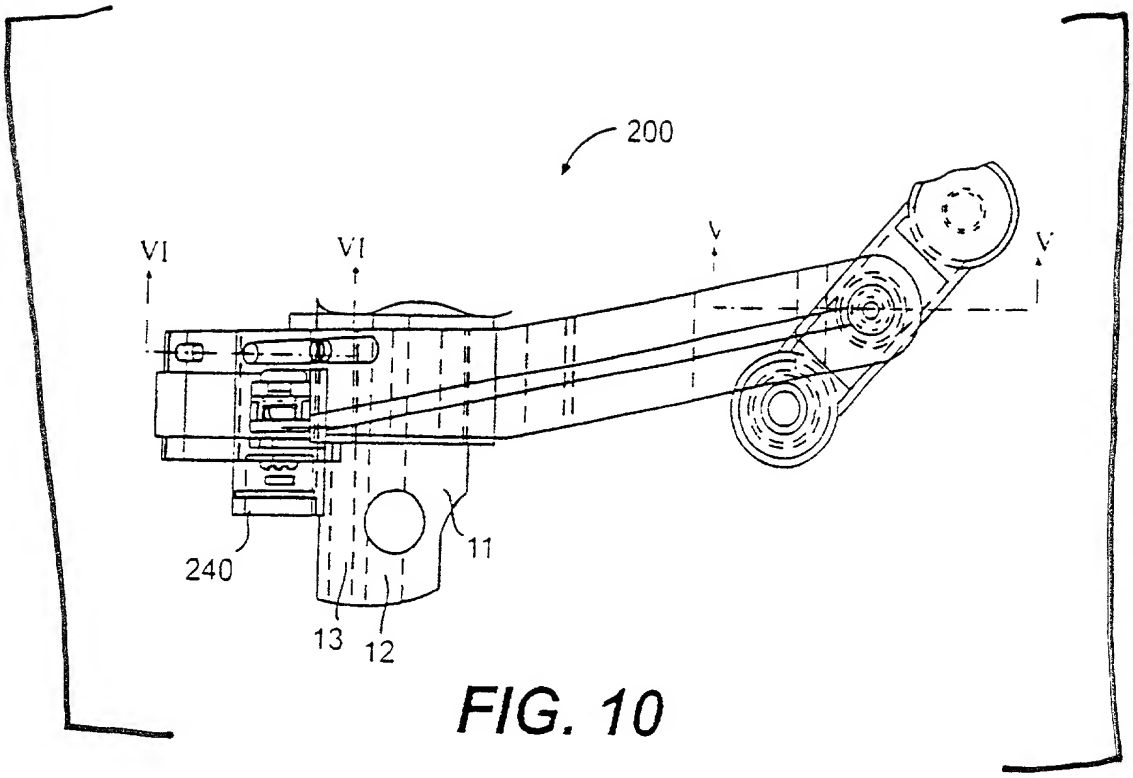

FIG. 10

CANCELED

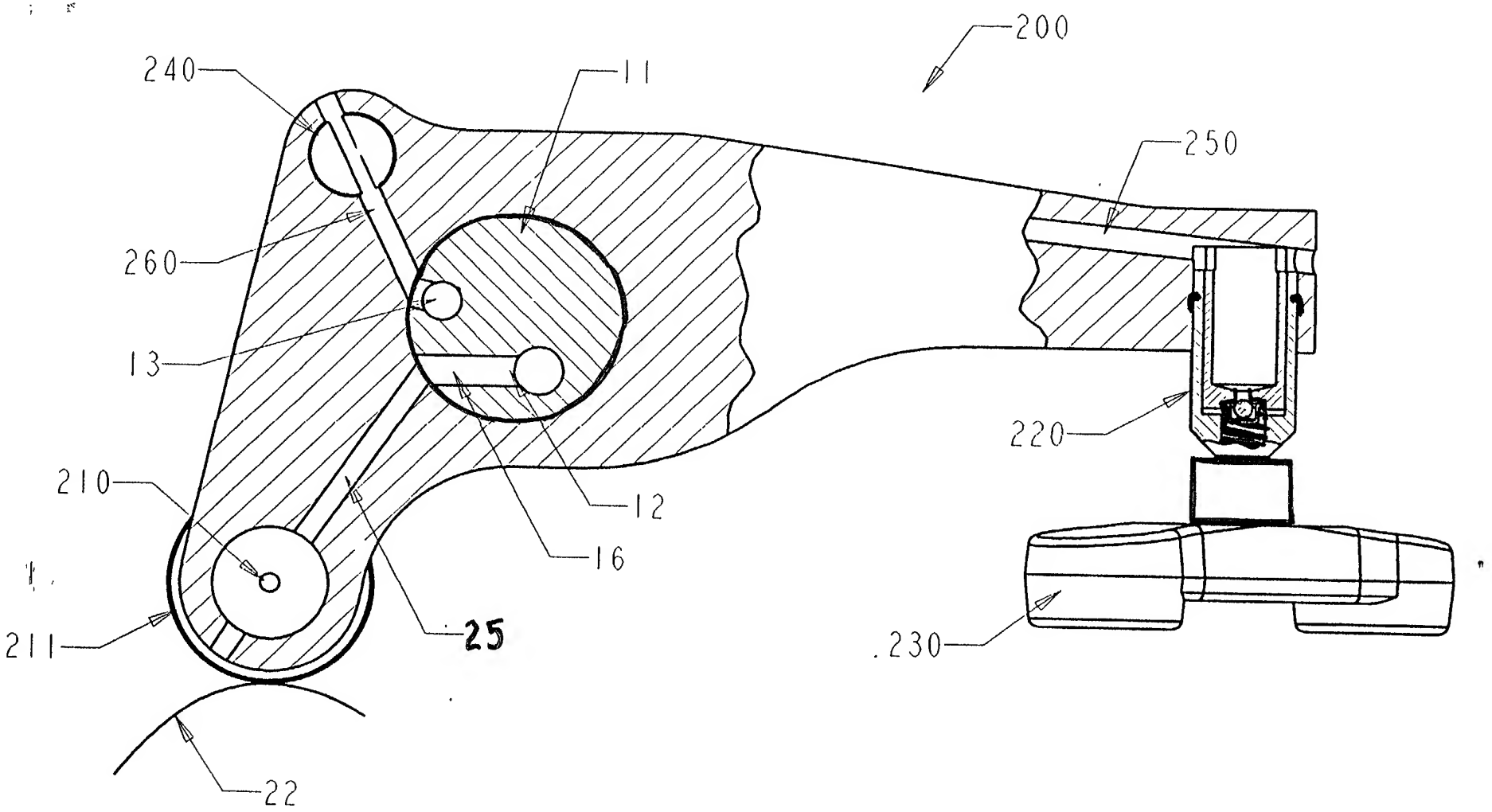

FIG. 11
AMENDED

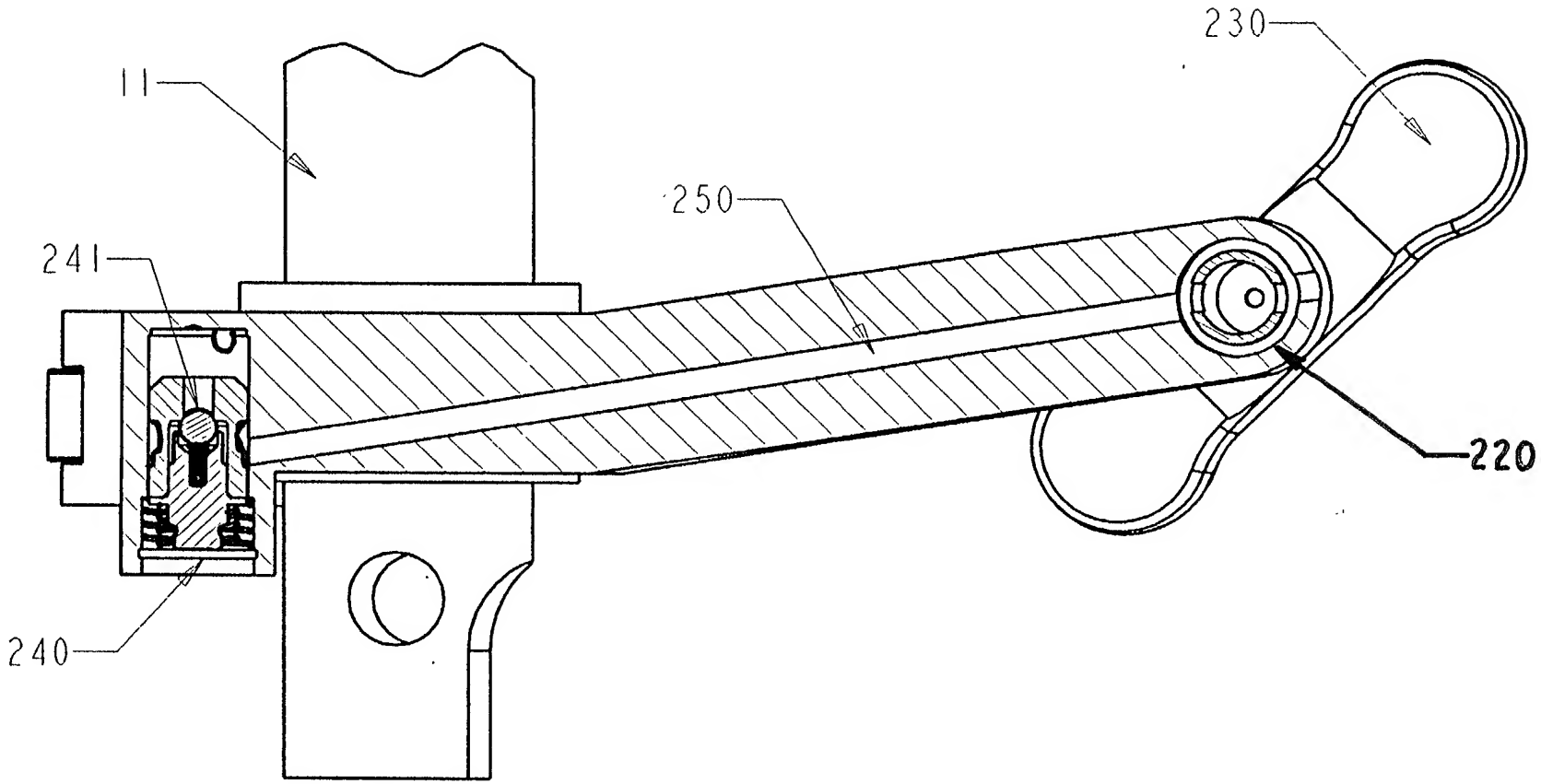

FIG. 12
AMENDED

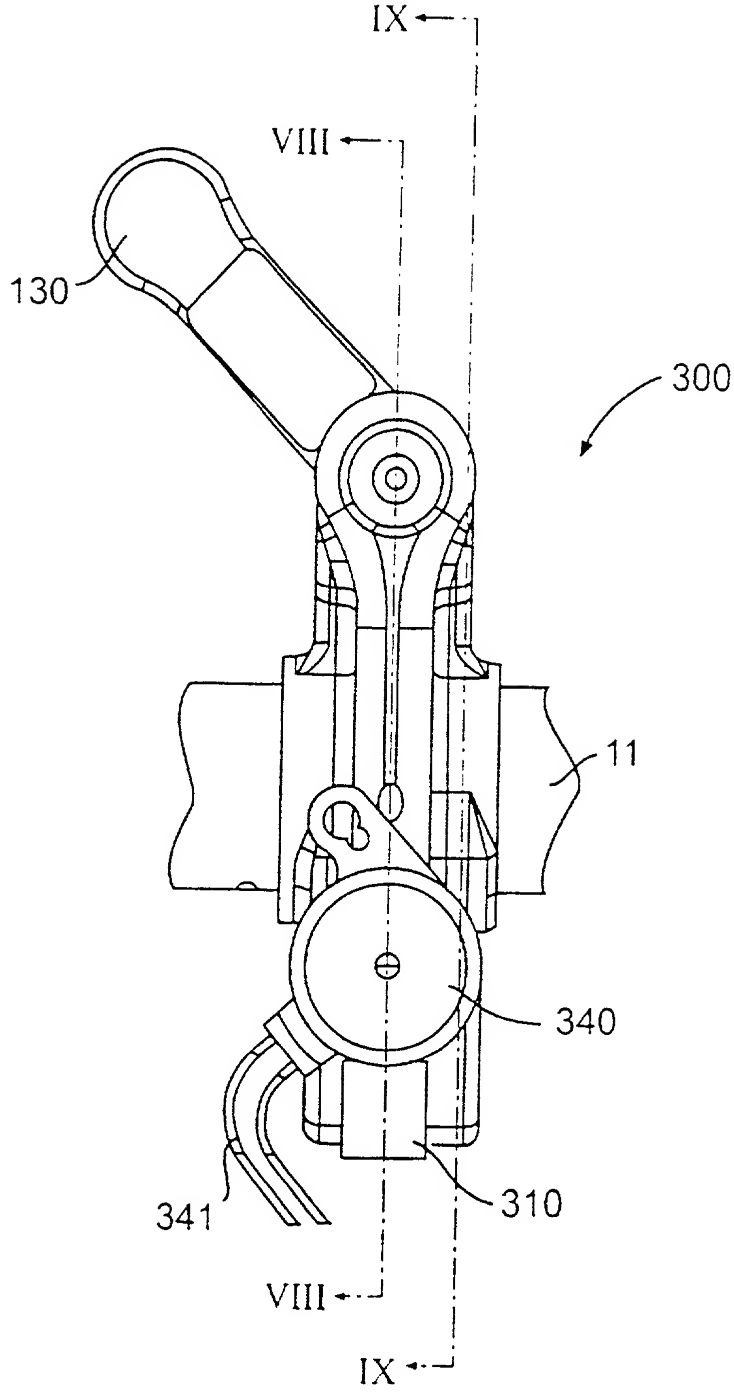

FIG. 13

CANCELED

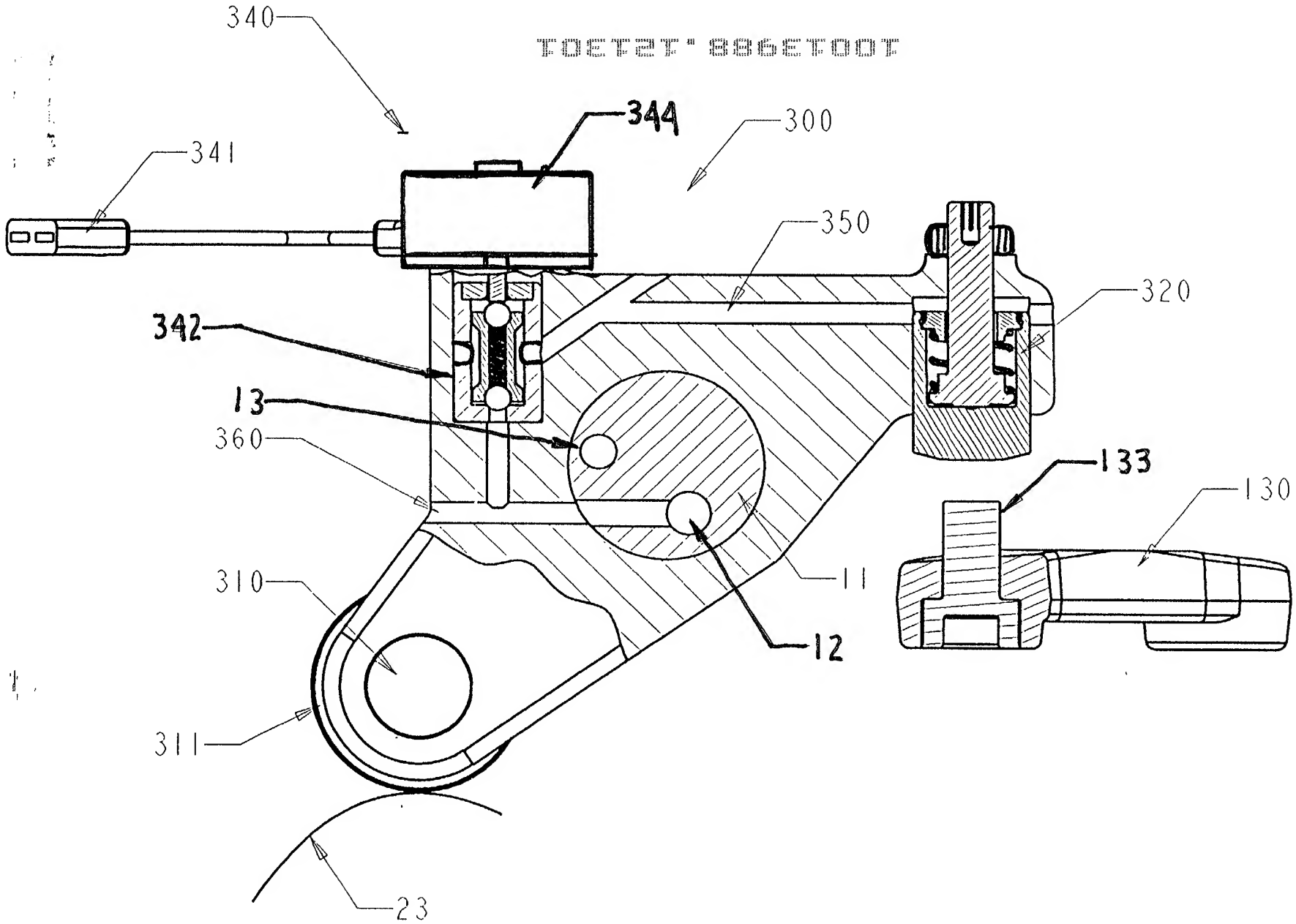

FIG. 14 AMENDED

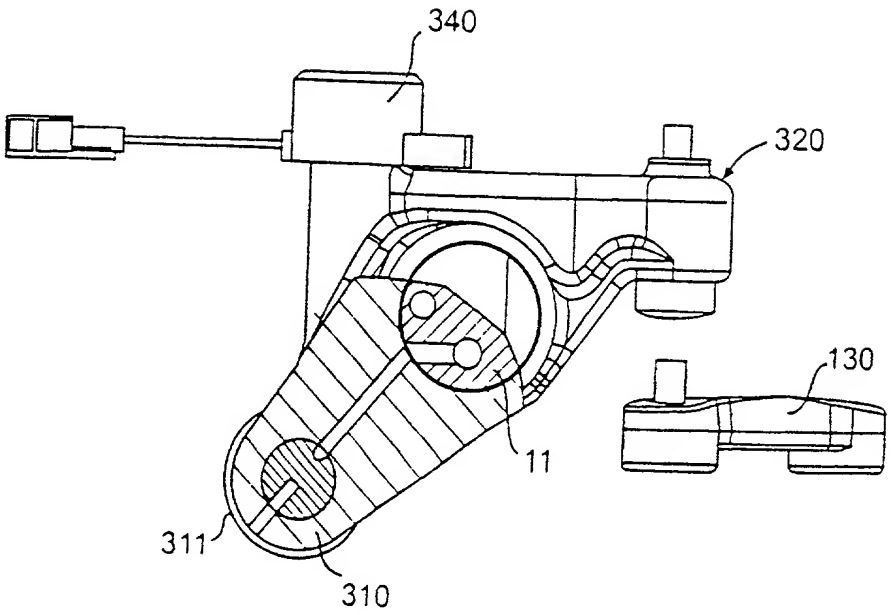

FIG. 15

CANCELED

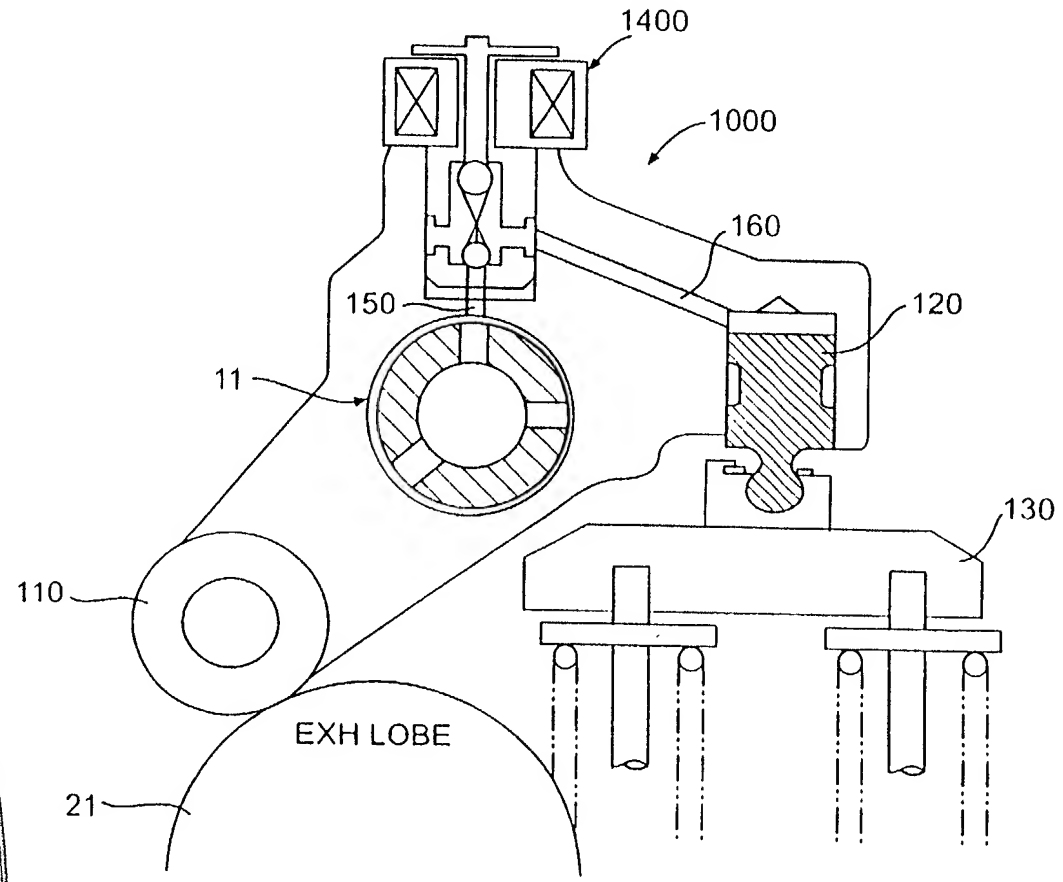

FIG. 16

CANCELED

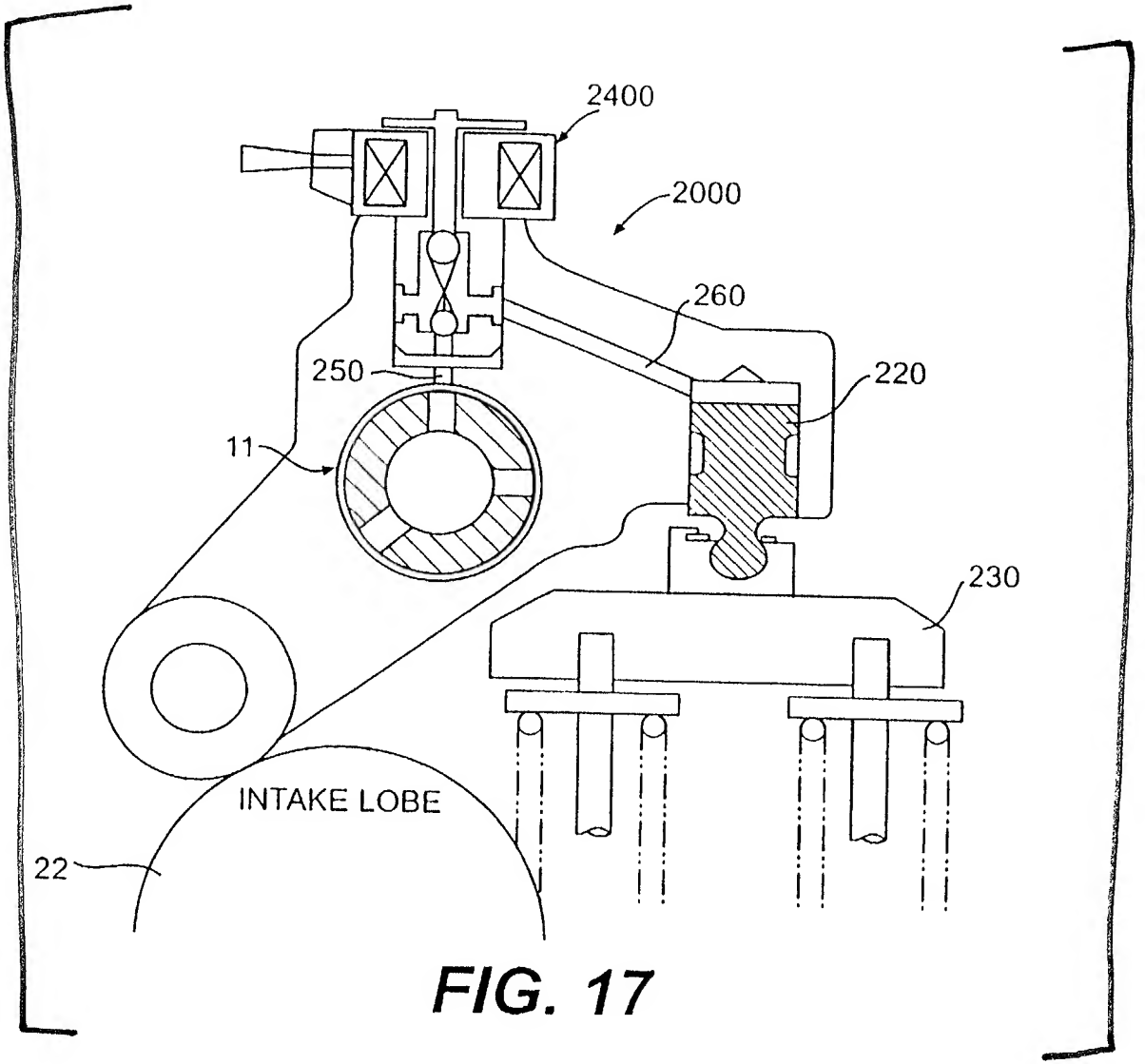

FIG. 17

CANCELED

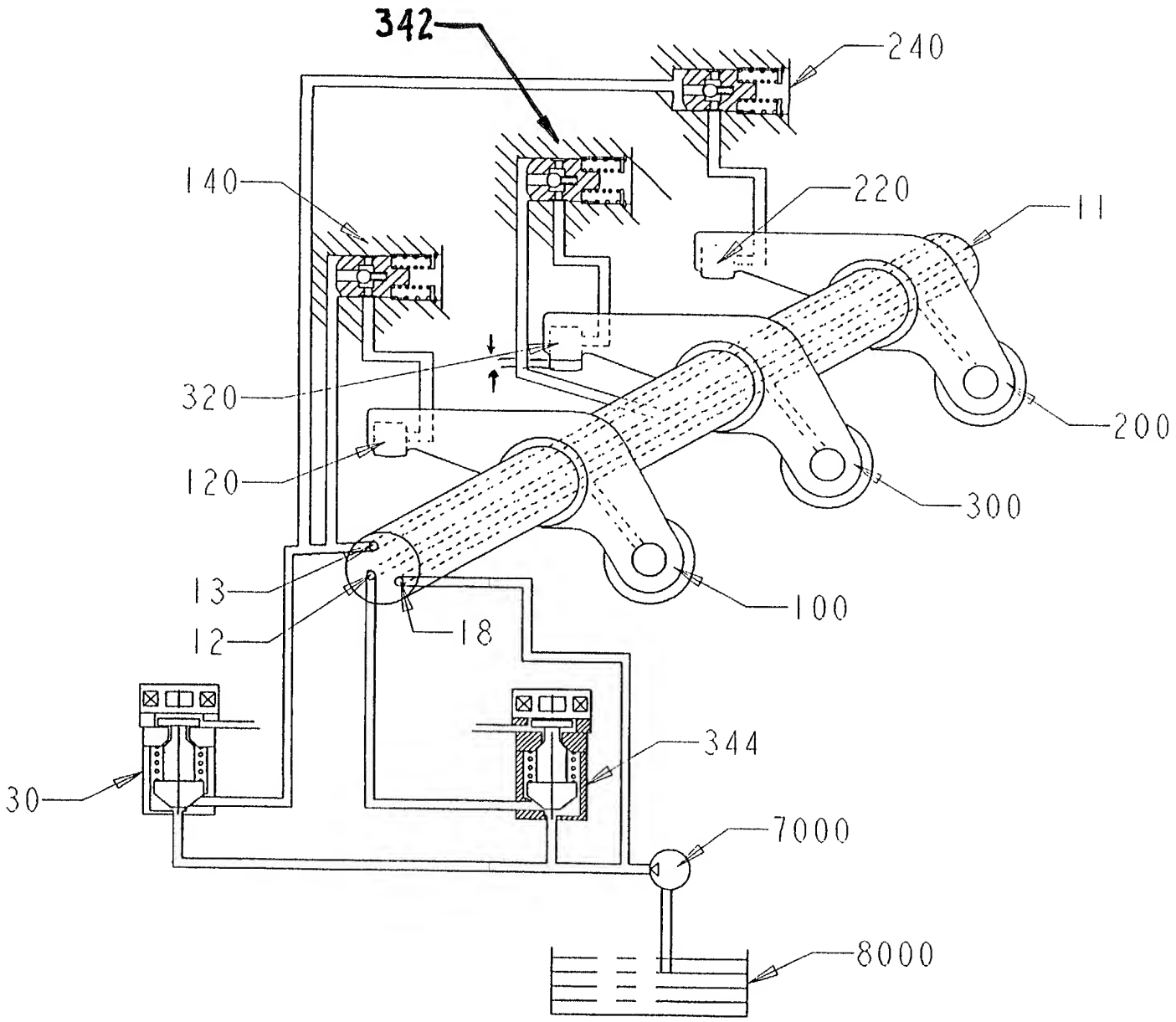

FIG. 18 AMENDED

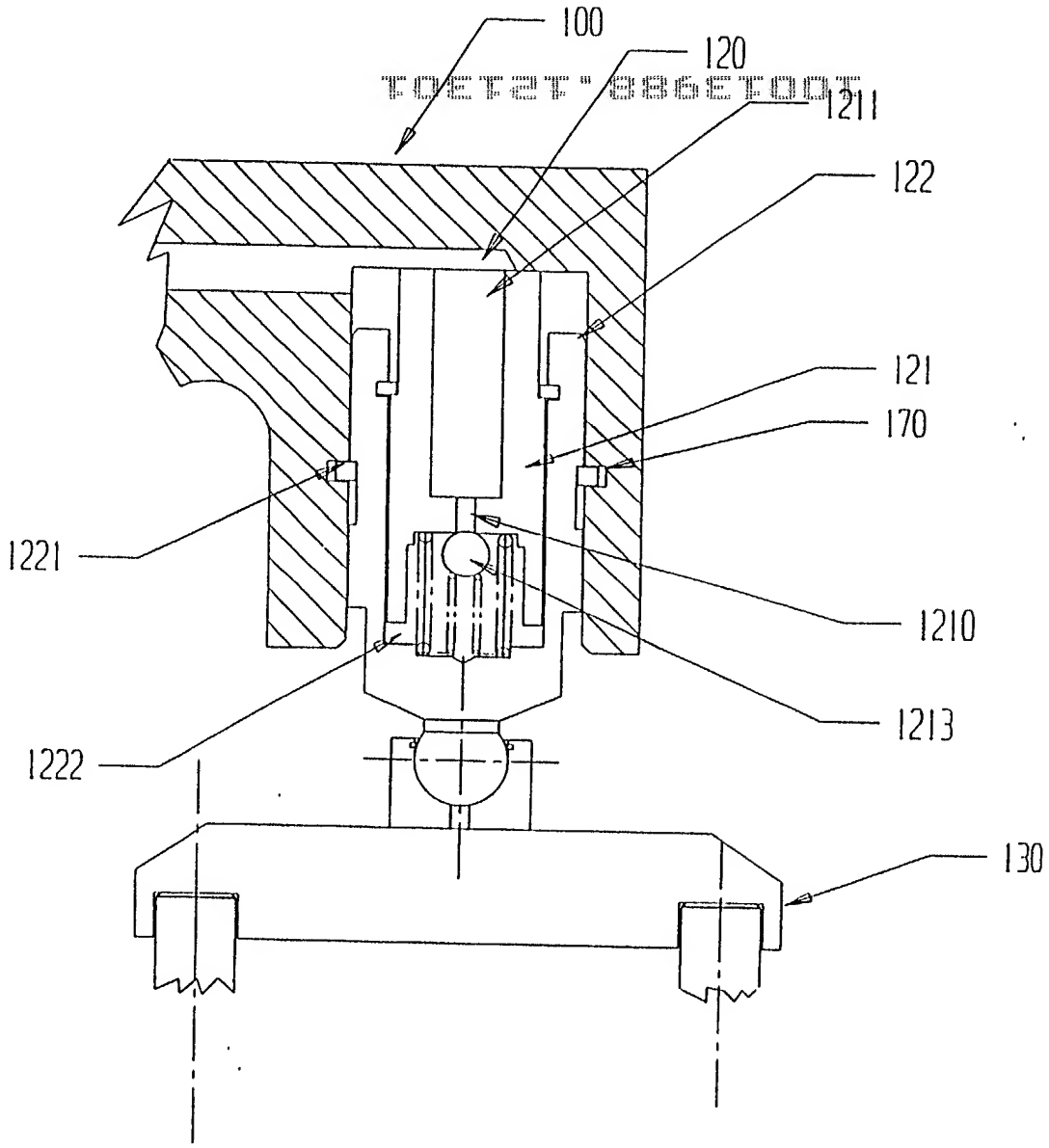

FIG. 19 NEW

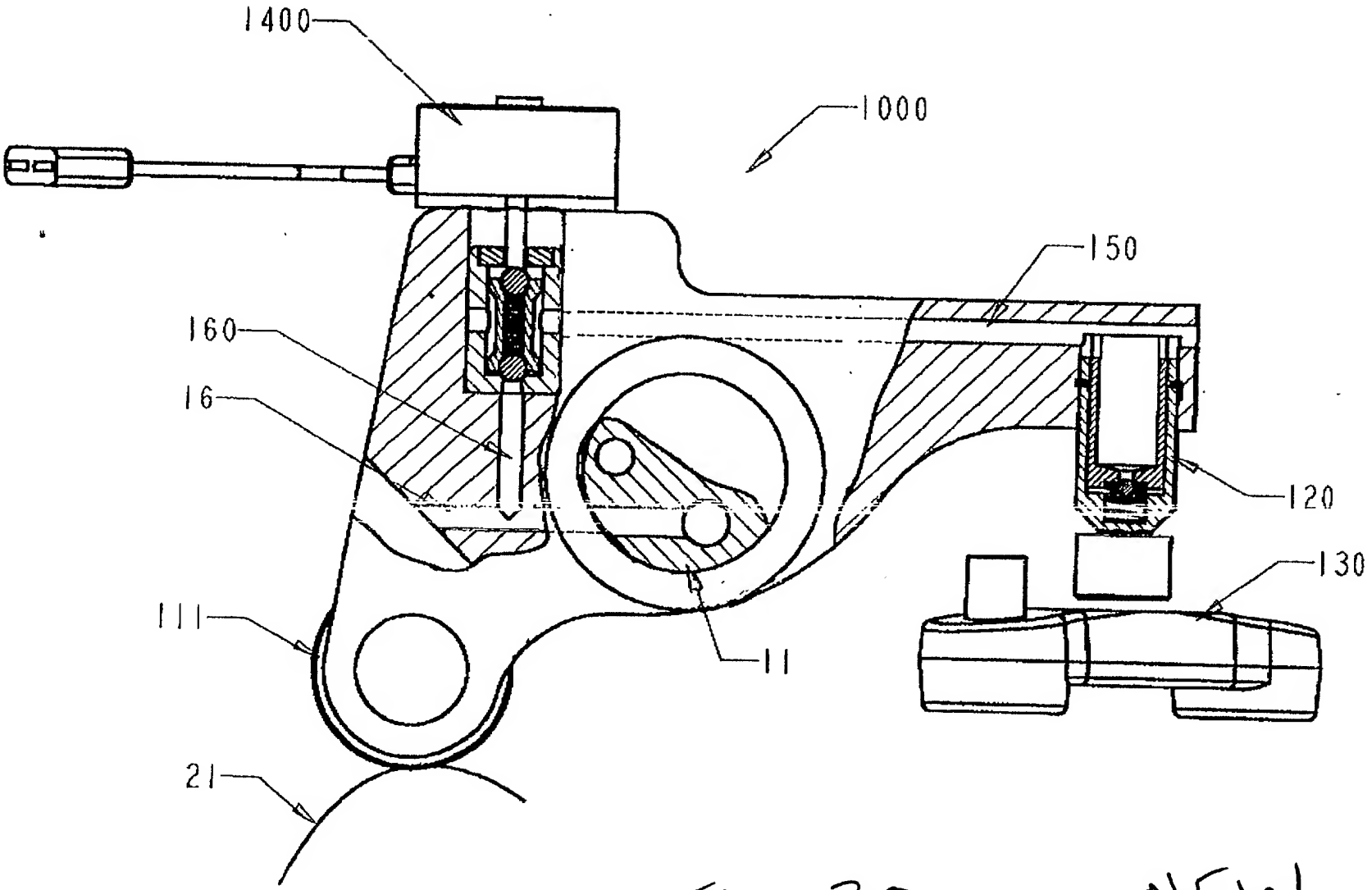

FIG. 20 NEW

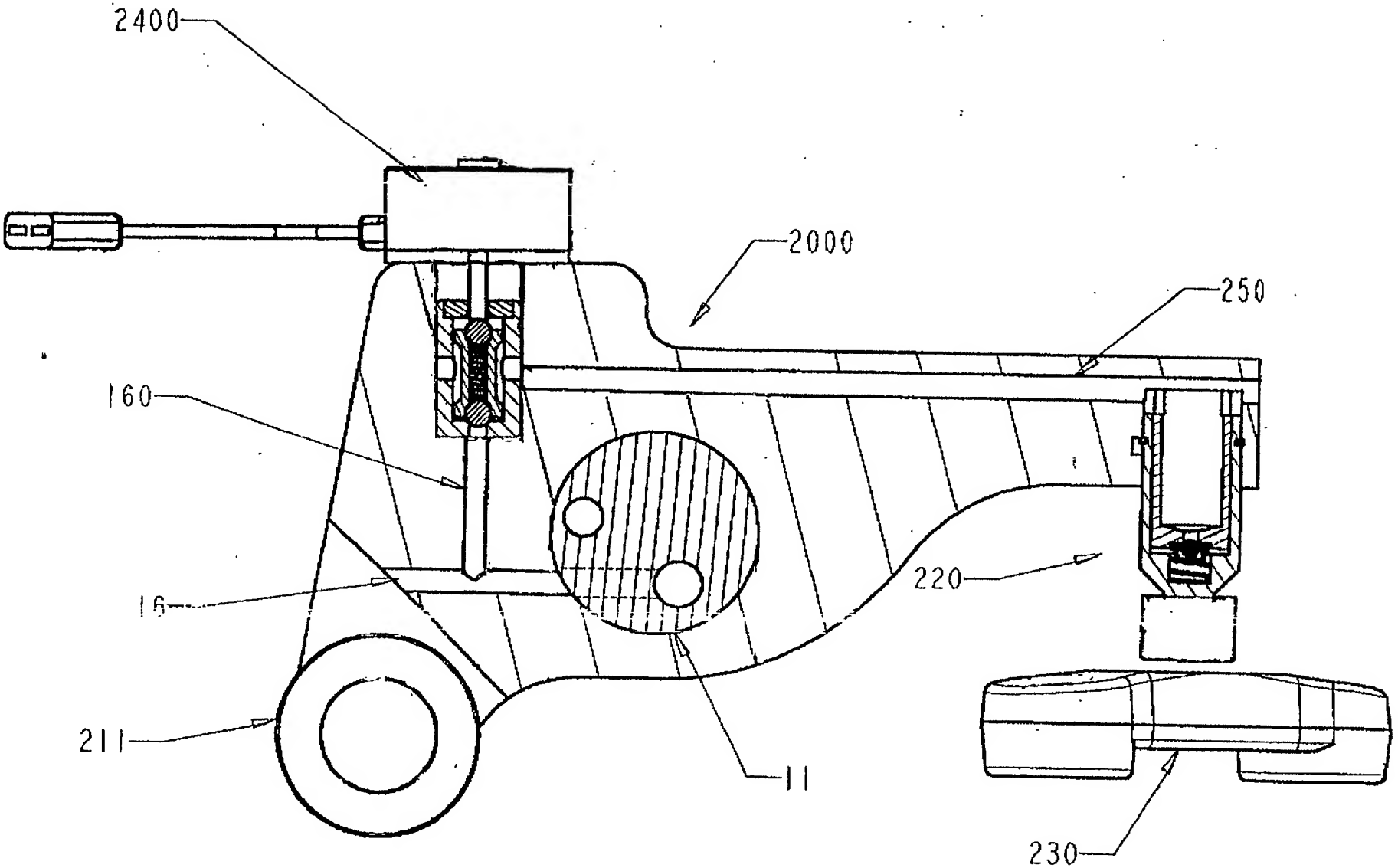

FIG. 21 NEW